

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Application No. 10/608,625  
Attorney Docket No. Q76266

### **REMARKS**

Upon entry of the Amendment, Claims 1, 12-33 are all the claims pending in the application. Claims 2-11 have been canceled. Claims 15-20, 22, and 25-33 are withdrawn from consideration. Claims 1, 12-14, 21, and 23-24 are under consideration.

Claims 1, 12-14, 21, and 23-24 have been amended. No new matter has been added.

#### **I. Claim Objections**

Claims 2-14 and 23-24 have been objected to for improper grammar. As suggested by the Examiner, dependent claims 12-14 and 23-24 have been amended to read “the reductase” instead of “a reductase.”

Claim 8 has been objected to, but claim 8 has been canceled.

Claim 21 has been objected to for improper grammar. As suggested by the Examiner, Claim 21 presently recites “comprising” instead of “comprises.”

#### **II. Claim Rejections - 35 U.S.C. § 101**

Claims 1-14 and 23-24 have been rejected under 35 U.S.C. § 101, allegedly because the claimed invention is directed to non-statutory subject matter.

Applicants respectfully submit that Claim 1 has been amended and is presently drawn to an isolated reductase. Reconsideration and withdrawal are respectfully requested.

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**III. Claim Rejections - 35 U.S.C. § 112**

Claims 1-2 and Claims 3-14 and 23-24 depending therefrom have been rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicants respectfully submit that Claim 1 has been amended. Claim 1 no longer recites the term “having.” Further, Claim 1 has clarified that the reductase is a variant of SEQ ID NO: 1. Reconsideration and withdrawal are respectfully requested.

Claims 3-4 and Claims 6-13 and 23-24 depending therefrom have been rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner asserts that there is insufficient antecedent basis for the phrase “said single” in Claims 3-4. Claims 3-4 and 6-11 have been canceled. Claims 12-13 and 23-24 have been amended to depend from Claim 1. None of the rejected claims recite “said single.” Reconsideration and withdrawal are respectfully requested.

Claim 21 has been rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner requests clarification of the phrase “selectivity.”

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Claim 21 has been amended so that it no longer recites the phrase “selectivity.”

Reconsideration and withdrawal are respectfully requested.

Claim 21 has been rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner requests clarification of the phrase “selectivity of said enzyme is improved.”

Claim 21 has been amended so that it no longer recites the phrase “selectivity of said enzyme is improved.” Reconsideration and withdrawal are respectfully requested.

Claims 1-14, 21, and 23-24 have been rejected under 35 U.S.C. § 112, first paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventions at the time the application was filed had possession of the claimed invention.

Applicants respectfully submit that Claims 1 and 21 presently recite subject matter sufficiently described in the specification. In Example 10, the specification describes extracting reductases from the transformants obtained in Example 3 and 4.

In Example 3, the specification describes producing transformants having a reductase in which an amino acid residue was substituted at any one of positions 54, 104, 254, and 271.

Example 3 describes that oligonucleotides having SEQ ID NO: 5, 7 and 10 to 27 were used. A

person skilled in the art would understand that the oligonucleotides of SEQ ID NOS: 5 and 12-27 substituted the leucine at position 54 of SEQ ID NO:1 with glutamine, glycine, serine, threonine, cysteine, asparagine, alanine, valine, isoleucine, methionine, lysine, arginine, aspartic acid, glutamic acid, tyrosine, proline or histidine. A person skilled in the art would understand that the oligonucleotide of SEQ ID NO: 7 substituted arginine at position 104 with cysteine. A person skilled in the art would understand that the oligonucleotide of SEQ ID NO: 10 substituted lysine at position 245 with arginine. A person skilled in the art would understand that the oligonucleotide of SEQ ID NO: 11 substituted asparagine at position 271 with aspartic acid.

Further, Example 4 describes producing DNA encoding multiple mutations. For example, Example 4 describes producing DNA encoding a protein in which: (1) the leucine at position 54 was substituted with glycine and the arginine at position 104 was substituted with cysteine, e.g., pL54QR104C; (2) the leucine at position 54 was substituted with glycine and the lysine at position 245 was substituted with arginine, e.g., pL54QK245R; (3) the leucine at position 54 was substituted with glycine and the asparagine at position 271 was substituted with aspartic acid, e.g., pL54QN271D; (4) the leucine at position 54 was substituted with glycine, the arginine at position 104 was substituted with cysteine, and the asparagine at position 271 was substituted with aspartic acid, e.g., pL54QR104CN271D; (5) the leucine at position 54 was substituted with glycine, the lysine at position 245 was substituted with arginine, and the asparagine at position 271 was substituted with aspartic acid, e.g., pL54QK245RN271D; and (6) the leucine at position 54 was substituted with glycine, the arginine at position 104 was substituted with cysteine, the

lysine at position 245 was substituted with arginine, and the asparagine at position 271 was substituted with aspartic acid, e.g., pL54QR104CK245RN271D.

Therefore, Applicants respectfully submit that Claim 1 is sufficiently described.

Further, Applicants respectfully submit that Examples 3 and 4 also provide for a sufficient description of the method recited in Claim 21.

Claims 1-14, 21, and 23-24 have been rejected as allegedly lacking enablement.

The Examiner asserts that the specification is enabling for a reductase which is a variant of SEQ ID NO: 1, consisting of amino acid substitutions at positions 54, 104, 254 and 271 of SEQ ID NO: 1 and a method of making such a variant.

Claim 1 presently recites that the amino acid sequence for the claimed reductase is one in which substitutions may occur at positions 54, 104, 254 and 271 of SEQ ID NO: 1. Further, Claim 21 recites substituting at least one of the amino acids at amino acid positions 54 and 104 in the amino acid sequence of SEQ ID NO: 1. Neither of Claims 1 and 27 presently recite that any amino acid in SEQ ID NO: 1 can be substituted. A person skilled in the art can readily practice the reductase recited in Claim 1 or the method recited in Claim 21 with the guidance provided in the specification. Reconsideration and withdrawal are respectfully requested.

#### **IV. Double Patenting**

Claims 1-14, 21, and 23-24 have been provisionally rejected under 35 U.S.C. § 101, as allegedly claiming the same invention as that of claims 1-8, 15, and 17-8 of co-pending Application No. 10/608,533 (“the ‘533 application”).

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Applicants respectfully submit that Claims 1 and 21 are not identical to Claims 1-14, 21, and 23-24 of the '533 application. Claim 1 of the present application recites a substitution of the amino acid at position 54 or 104 or both. In addition to the substitution at position 54, 104 or both, Claim 1 of the present application recites that the lysine at position 245 and the asparagine at position 271 of SEQ ID NO: 1 may be substituted.

In contrast, Claim 1 of the '533 application recites that the lysine at position 245 and the asparagine at position 274 are substituted. Moreover, Claim 1 of the '533 application does not recite that positions 54 or 104 may be substituted.

Also, Claim 21 of the present application recites substituting position 54 or 104 or both, rather than at position 245 or 275. In contrast, Claim 15 of the '533 recites substituting position 245 or 275, rather than at position 54 or 104.

Reconsideration and withdrawal are respectfully requested.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

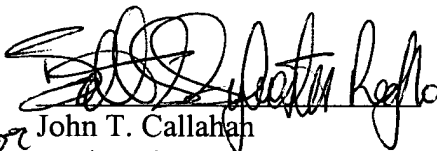
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**23373**

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Date: April 17, 2006